

Application No. 10/662,892

Filed: 9/15/03

TC Art Unit: 2812

Confirmation No.: 1170

AMENDMENT TO THE CLAIMS

1. (Currently Amended) A system for determining and monitoring contamination in a photolithography instrument, comprising at least one collection device in fluid communication with a gas flow extending through an optical system of the ~~teel~~photolithography instrument, the collection device having an adsorptive material and a saturation capacity for a lower molecular weight contaminant, the collection device being operated past the saturation capacity of the lower molecular weight contaminant while continuing to adsorb higher molecular weight contaminants in the gas flow.
2. (Previously Presented) The system of Claim 1, wherein the adsorptive material comprises glass spheres having predetermined surface properties for adsorption of contaminants.
3. (Previously Presented) The system of Claim 1, wherein the collection device is tubular.
4. (Previously Presented) The system of Claim 1, further comprising a collection device that is not in fluid communication with the gas flow.
5. (Previously Presented) The system of Claim 1, wherein the collection device is at least one of glass and coated glass material.

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6. (Previously Presented) The system of Claim 1, wherein the adsorptive material comprises the polymer Tenax[®].
7. (Previously Presented) The system of Claim 1, wherein the contamination includes at least one of refractory compounds, high molecular weight compounds and low molecule weight compounds.
8. (Currently Amended) A contamination analysis apparatus in a photolithography system having an optical element comprising:
a collection device comprising a first material having a surface property of the optical element coupled to a gas ~~source~~ flow, the collection device being coupled to a light source such that light is optically coupled to a surface of the material and having an adsorptive material ~~and operated past with~~ a saturation capacity to adsorb contaminants in the gas flow.
9. (Currently Amended) The contamination analysis apparatus of Claim 8, wherein the adsorptive material comprises a polymer ~~such as Tenax[®]~~ that absorbs higher molecular weight organic compounds.
10. (Previously Presented) The contamination analysis apparatus of Claim 8, wherein the adsorptive material comprises glass spheres.
11. (Previously Presented) The contamination analysis apparatus of Claim 8, wherein the contaminants include at least one of

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refractory compounds, high molecular weight compounds and low molecular weight compounds.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Currently Amended) A filtering system for removing contamination in a semiconductor processing system, comprising at least one collection device in fluid communication with a gas flow extending through an optical system of the semiconductor processing system, at least one collection device having a selectively permeable membrane that filters contaminants ~~such as at least one of including a~~ refractory compound, a high molecular weight compound and a low molecular weight compound from the gas flow, the collection device being operated past a saturation of the membrane to absorb the low molecular weight compound.

16. (Previously Presented) The filtering system of Claim 15, wherein the collection device is coupled to a vacuum source to increase a pressure gradient across the selective membrane.

17. (Previously Presented) The filtering system of Claim 15, wherein the gas flow comprises clean dry air, nitrogen, and/or other inert gases.

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18. (Previously Presented) The filtering system of Claim 15, further comprising a regenerative adsorption device in fluid communication with an output permeate stream from the selectively permeable membrane.
19. (Previously Presented) The filtering system of Claim 15, further comprising a second collection device in fluid communication with a residue stream of the collection device, the second collection device having a second membrane that is selectively permeable to oxygen and water.
20. (Cancelled)
21. (Cancelled)
22. (Cancelled)
23. (Cancelled)
24. (Cancelled)